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Gallo, F-92648 Boulogne Cedex (FR). (81) Designated States (national): AE, AG, AL, AM, AT, AU,

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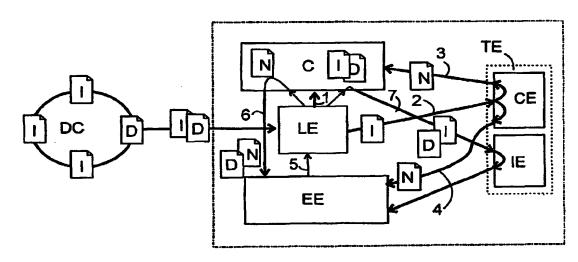
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#### Declarations under Rule 4.17:

- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for the following designation US
- of inventorship (Rule 4.17(iv)) for US only

[Continued on next page]

(54) Title: A DATA PROCESSING DEVICE AND METHOD FOR INTERACTIVE TELEVISION



(57) Abstract: A programmable data processing device for a digital TV set-top box comprises: - a loading engine (LE) for receiving portions of code of a first type and/or data from a DSM-CC carousel (DC), - a storage means (C) for storing the portions received by the loading engine, - an execution engine (EE) for executing an application embodied by the received portions; and - a translating engine (TE) for translating the first type code into a native code of the execution engine (EE). The translating engine (TE) is adapted to compile at least a certain one of said received portions into native code and to store the thus compiled portion in the storage means (C), and to interpret other portions of code, and the execution engine (EE) is adapted to process compiled code and interpreted code within a same application.





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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04N5/00 H04N7/24

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According to International Patent Classification (IPC) or to both national classification and IPC

#### B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

Citation of document, with indication, where appropriate, of t	he relevant passages	Relevant to claim No.
BETTER LATE THAN NEVER?" CONFERENCE RECORD OF POPL '97: SIGPLAN-SIGACT SYMPOSIUM ON PF PROGRAMMING LANGUAGE. PARIS, C 1997, CONFERENCE RECORD OF POF SIGPLAN-SIGACT SYMPOSIUM ON PF PROGRAMMING LANGUAGE, NEW YORK VOl. CONF. 28,	: 24TH. ACM RINCIPLES OF JAN. 15 - 17, PL: ACM RINCIPLES OF (, ACM, US,	1,2, 10-14, 16,24-27
her documents are listed in the continuation of box C.	Patent family members are liste	d in annex.
ent defining the general state of the art which is not dered to be of particular relevance document but published on or after the international date ent which may throw doubts on priority claim(s) or is cited to establish the publication date of another on or other special reason (as specified) sent referring to an oral disclosure, use, exhibition or means	or priority date and not in conflict will died to understand the principle or invention  "X" document of particular relevance; the cannot be considered novel or cannot have not an inventive step when the cannot be considered to involve an document is compliated to involve an document is compliated with one or if	th the application but theory underlying the claimed invention of the considered to to tocument is taken alone inventive step when the nore other such docu-
	PLEZBERT M P ET AL: "DOES JUST BETTER LATE THAN NEVER?" CONFERENCE RECORD OF POPL '97: SIGPLAN—SIGACT SYMPOSIUM ON PIPROGRAMMING LANGUAGE. PARIS, 1997, CONFERENCE RECORD OF POISIGPLAN—SIGACT SYMPOSIUM ON PIPROGRAMMING LANGUAGE, NEW YORK VOI. CONF. 28, 15 January 1997 (1997—01—15), 120—131, XP000741815 ISBN: 0-89791—853—3 sections 1—4, pages 120—126   thered to be of particular relevance document but published on or after the international date ent which may throw doubts on priority claim(s) or is cited to establish the publication date of another in or other special reason (as specified)	PLEZBERT M P ET AL: "DOES JUST IN TIME = BETTER LATE THAN NEVER?"  CONFERENCE RECORD OF POPL '97: 24TH. ACM SIGPLAN-SIGACT SYMPOSIUM ON PRINCIPLES OF PROGRAMMING LANGUAGE. PARIS, JAN. 15 – 17, 1997, CONFERENCE RECORD OF POPL: ACM SIGPLAN-SIGACT SYMPOSIUM ON PRINCIPLES OF PROGRAMMING LANGUAGE, NEW YORK, ACM, US, vol. CONF. 28, 15 January 1997 (1997-01-15), pages 120-131, XP000741815 ISBN: 0-89791-853-3 sections 1-4, pages 120-126  -/  Triater document published after the increase of color of particular relevance of color of the color of particular relevance of color of particular relevance of color of the color of particular relevance of color of the color of particular relevance of the color of

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	ation) DOCUMENTS CONSIDERED TO BE RELEVANT	12
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	WO 03 034215 A (KONINKL PHILIPS ELECTRONICS NV) 24 April 2003 (2003-04-24)	1-6, 10-12, 14, 16-20, 24-26
	the whole document	
X	EP 1 037 145 A (HEWLETT PACKARD CO) 20 September 2000 (2000-09-20) abstract	1,2,10, 11, 14-16, 24,25,28
	sections '0006!, '0007! sections '0010!-'0014! sections '0021!-'0026!	
X	US 5 768 593 A (BROWN JORG ANTHONY ET AL) 16 June 1998 (1998-06-16)	1,2,10, 11, 13-16, 24,25,27
Y	abstract	3-6, 17-20
·	column 1, line 50 -column 2, line 27 column 3, line 35 -column 4, line 19 column 6, line 12 -column 7, line 63 column 9, line 40 - line 58	17-20
Y	WO 99 65230 A (KONINKL PHILIPS ELECTRONICS NV; PHILIPS SVENSKA AB (SE)) 16 December 1999 (1999-12-16) page 1, line 1 -page 3, line 7 page 6, line 23 -page 7, line 12	3-6, 17-20
X	DE 199 45 992 A (FUJITSU LTD) 4 May 2000 (2000-05-04)	1,2, 10-12, 14,16, 24-26
•	page 4, line 49 - line 53 page 42, line 42 -page 45, line 4 figures 1,25	
X	WO 01 09715 A (SUN MICROSYSTEMS INC) 8 February 2001 (2001-02-08)	1,2,10, 11, 14-16, 24,25,28
A	section "Summary of the invention"  page 16, line 18 -page 18, line 10  page 21, line 18 -page 22, line 21  page 28, line 1 -page 31, line 24	12,26
	-/	



Internal al Application No PCT/EP 03/50265

		PCT/EP 03	/50265
C.(Continu	ation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages		Relevant to claim No.
Х	EP 0 908 819 A (SUN MICROSYSTEMS INC) 14 April 1999 (1999-04-14)		1,2,10, 11, 14-16, 24,25
	sections '0012!-'0014! abstract		
A	EP 0 949 816 A (THOMSON CONSUMER ELECTRONICS) 13 October 1999 (1999-10-13) section '006!		1-11, 14-25,28
A	US 6 199 202 B1 (COUTANT CARY ET AL) 6 March 2001 (2001-03-06) column 8, line 36 -column 9, line 2		1,11-14, 24-27
A	WO 00 33532 A (SUN MICROSYSTEMS INC) 8 June 2000 (2000-06-08) abstract; figure 1		1-28
A	US 6 000 028 A (CHERNOFF ANTON ET AL) 7 December 1999 (1999-12-07)		
	·		



Internal Application No PCT/EP 03/50265

Patent document cited in search report		Publication date		Patent family member(s)	•	Publication date
WO 03034215	A	24-04-2003	WO US	03034215 2003079208		24-04-2003 24-04-2003
EP 1037145	A	20-09-2000	US EP JP	6332216 1037145 2000267862	A2	18-12-2001 20-09-2000 29-09-2000
US 5768593	Α	16-06-1998	NONE			
WO 9965230	A	16-12-1999	CN EP WO JP	1277778 1034653 9965230 2002518895	A2 A2	20-12-2000 13-09-2000 16-12-1999 25-06-2002
DE 19945992	A	04-05-2000	US CN DE JP US	6463582 1270348 19945992 2000132408 2002147969	A A1 A	08-10-2002 18-10-2000 04-05-2000 12-05-2000 10-10-2002
WO 0109715	Α	08-02-2001	AU WO	6748400 0109715		19-02-2001 08-02-2001
EP 0908819	A	14-04-1999	US CN EP JP US	5995754 1234551 0908819 11272476 6237141	A A2 A	30-11-1999 10-11-1999 14-04-1999 08-10-1999 22-05-2001
EP 0949816	A	13-10-1999	US EP CA CN DE DE DE DE EP ES JP SG	5563648 0949816 2145898 1112333 69515076 69515076 69531561 949816 0680213 2142966 2147719 8051596 30363	A2 A1 A ,B D1 T2 D1 T1 A2 T3 T1 A	08-10-1996 13-10-1999 29-10-1995 22-11-1995 23-03-2000 13-07-2000 25-09-2003 25-01-2001 02-11-1995 01-05-2000 01-10-2000 20-02-1996 01-06-1996
US 6199202	B1	06-03-2001	NONE			
WO 0033532	A	08-06-2000	US AU EP JP WO	6460086 2155100 1133862 2002532009 0033532	A A2 T	01-10-2002 19-06-2000 19-09-2001 24-09-2002 08-06-2000
US 6000028	Α	07-12-1999	NONE			